

## ROCKS

**I) Igneous rocks:** (derived from the Latin word *igneus* meaning of fire, from *ignis* meaning fire).

Igneous rocks are formed through the cooling and solidification of magma or lava. Igneous rocks may form:

**A)** Below the surface, from a slowly cooled magma, with a good crystallization (coarse-grained): Plutonic rocks such as:



**GRANITE**



**DIORITE**



**SYENITE**

The minerals of light grey or pink colour are feldspars, those which are black are mica, and those ones with brightness and transparency are quartz.

**B)** On the surface, from fast cooled lava, without visible crystals (fine-grained): volcanic rocks such as:



**BASALT**



**ANDESITE**

### ACTIVITY

Put the letters of the corresponding characteristics in the correct box below.

a.	Slow cooling
b.	Magma solidification
c.	Fast cooling
d.	Fine grained
e.	In depth
f.	Good crystallization
g.	Bad crystallization
h.	Lava solidification
i.	Coarse-grained
j.	On surface

ANDESITE	DIORITE	BASALT	SYENITE	GRANITE

**II) Metamorphic rocks:** are the result of the transformation of an existing rock type, in a process called metamorphism (which means "change in form"), where this existing rock is subjected to heat and high pressure. They can form:

A) From tectonic processes such as continental collisions which cause horizontal pressure with friction and heat. → Rocks with a characteristic *foliation*, meaning that mineral layers split off easily into flakes or slabs.

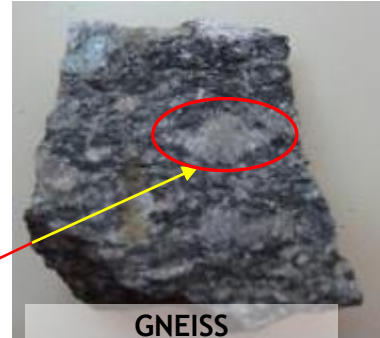
From a lower to a higher grade of metamorphism we have:



SLATE



SCHIST



GNEISS

In gneiss we find alternating light and dark bands (instead of foliation) and, often, with a kind of "eyes".

B) When rock is heated up by the intrusion of magma from the Earth's interior and/or is exposed to high pressures in great depths within the Earth's crust.

In this case, rocks have not a foliated structure. Most important examples are:



MARBLE



QUARTZITE

Marble is made of crystals of calcite, whereas quartzite is made of crystals of quartz (as its name says)

### ACTIVITY

Put the letters of the corresponding characteristics in the correct box below.

a. Medium grade of metamorphism
b. Crystals of calcite
c. Low grade of metamorphism
d. Horizontal pressure
e. High grade of metamorphism
f. Foliated or banded structure
g. Great depth-high pressure
h. Can be divided into flakes
i. Crystals of quartz
j. Not foliated structure

MARBLE	GNEISS	SLATE	SCHIST	QUARTZITE